

anticipated by Strother, U.S. Patent No. 4,233,501 (Strother),
and rejected claims 1, 2, 4, 5, 8-11, 13, 14, and 17 under
Section 102(b) as being anticipated by Schwerdt, et al., U.S.
Patent No. 3,214,596 (Schwerdt). Finally, the examiner rejected
5 claims 3, 7, 10-12, and 16 under 35 U.S.C. §103(a) as being
unpatentable over Strother for the reasons stated in the office
action. The examiner did not specifically reject claims 6 and
15. Therefore, applicant assumes that these claims contain
allowable subject matter and would be independently allowable if
10 re-written in independent form to include the limitations of the
base claim and any intervening claims.

Applicant believes that none of the currently rejected
claims are anticipated by or obvious over the cited references
and respectfully traverses the examiner's rejections for the
15 reasons that will be set forth below.

Re the Section 112 rejections:

The examiner rejected claims 2, 3, 11, and 12 under 35
U.S.C. §112, second paragraph, stating that the term "the object
side surface" lacks antecedent basis. Applicant disagrees.
20 Claim 2 clearly sets forth the antecedent basis for the term by
stating that the lens includes "an object side surface." Claim
2 later specifies that the occluding element is positioned
adjacent "the object side surface of the lens." The situation
with claim 11 is identical. That is, claim 11 first states that
25 the lens includes "an object side surface," then specifies that
the occluding element is positioned adjacent "the object side
surface of the lens."

Since claims 2 and 11 clearly provide the required
antecedent basis for the term "the object side surface," claims
30 2 and 11, and the claims depending therefrom (i.e., claims 3 and
12), are sufficiently definite under Section 112. Accordingly,
applicant respectfully requests the examiner to reconsider and
remove the Section 112 rejections.

Legal Standard For Rejecting Claims
Under 35 U.S.C. §102(b) and §103

The standard for lack of novelty, that is, for "anticipation," under 35 U.S.C. §102 is one of strict identity. To anticipate a claim for a patent, a single prior source must contain all its essential elements. Hybritech, Inc. v. Monoclonal Antibodies, Inc., 231 USPQ 81, 90 (Fed. Cir. 1986). Invalidity for anticipation requires that all of the elements and limitations of the claims be found within a single prior art reference. Scripps Clinic & Research Foundation v. Genentech, Inc., 18 USPQ2d 1001 (Fed. Cir. 1991). Furthermore, functional language, preambles, and language in "whereby," "thereby," and "adapted to" clauses cannot be disregarded. Pac-Tec, Inc. v. Amerace Corp., 14 USPQ2d 1871 (Fed. Cir. 1990).

The test for obviousness under 35 U.S.C. § 103 is whether the claimed invention would have been obvious to those skilled in the art in light of the knowledge made available by the reference or references. In re Donovan, 184 USPQ 414, 420, n. 3 (CCPA 1975). It requires consideration of the entirety of the disclosures of the references. In re Rinehart, 189 USPQ 143, 146 (CCPA 1976). All limitations of the claims must be considered. In re Boe, 184 USPQ 38, 40 (CCPA 1974). In making a determination as to obviousness, the references must be read without benefit of applicants' teachings. In re Meng, 181 USPQ 94, 97 (CCPA 1974). In addition, the propriety of a Section 103 rejection is to be determined by whether the reference teachings appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed substitution, combination, or other modifications. In re Lintner, 173 USPQ 560, 562 (CCPA 1972).

A basic mandate inherent in Section 103 is that a piecemeal reconstruction of prior art patents shall not be the basis for a holding of obviousness. It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position,

to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. In re Kamm, 172 USPQ 298, 301-302 (CCPA 1972). Put somewhat differently, the fact that the inventions of the references and of the applicants may be directed to concepts for solving the same problem does not serve as a basis for arbitrarily choosing elements from references to attempt to fashion applicants' claimed invention. In re Donovan, 184 USPQ 414, 420 (CCPA 1975).

In the case of In re Wright, 6 USPQ2d 1959 (Fed. Cir. 1988) (restricted on other grounds by In re Dillon, 16 USPQ2d 1897 (Fed. Cir. 1990), the CAFC decided that the Patent Office had improperly combined references which did not suggest the properties and results of the applicants' invention nor suggest the claimed combination as a solution to the problem which applicants' invention solved. The CAFC reached this conclusion after an analysis of the prior case law, at p. 1961:

"We repeat the mandate of 35 U.S.C. §103: it is the invention as a whole that must be considered in obviousness determinations. The invention as a whole embraces the structure, its properties, and the problem it solves. See, e.g., Cable Electric Products, Inc. v. Genmark, Inc., 770 F.2d 1015, 1025, 226 USPQ 881, 886 (Fed. Cir. 1985) ("In evaluating obviousness, the hypothetical person of ordinary skill in the pertinent art is presumed to have the 'ability to select and utilize knowledge from other arts reasonably pertinent to [the] particular problem' to which the invention is directed"), quoting In re Angle, 444 F.2d 1168, 1171-72, 170 USPQ 285, 287-88 (CCPA 1971); In re Antonie, 559 F.2d 618, 619, 195 USPQ 6, 8 (CCPA 1977) ("In delineating the invention as a whole, we look not only at the claim in question... but also to those properties of the subject matter which are inherent in the subject matter and are disclosed in the Specification") (emphasis in original).

The determination of whether a novel structure is or is not "obvious" requires cognizance of the properties of that structure and the problem which it solves, viewed in light of the teachings of the prior art. See, e.g., In re Rinehart, 531 F.2d 1048, 1054, 189 USPQ 143, 149 (CCPA 1976) (the particular problem facing the inventor must be considered in determining obviousness); see also Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co., 730

5 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984) (it is error to focus "solely on the product created, rather than on the obviousness or notoriousness of its creation") (quoting General Motors Corp. v. U.S. Int'l Trade Comm'n, 687 F.2d 476, 483, 215 USPQ 484, 489 (CCPA 1982), cert. denied, 459 U.S. 1105 (1983)).

10 Thus the question is whether what the inventor did would have been obvious to one of ordinary skill in the art attempting to solve the problem upon which the inventor was working. Rinehart, 531 F.2d at 1054, 189 USPQ at 149; see also In re Benno, 768 F.2d 1340, 1345, 226 USPQ 683, 687 (Fed. Cir. 1985) ("appellant's problem" and the prior art present different problems requiring different solutions").

15 A reference which teaches away from the applicants' invention may not properly be used in framing a 35 U.S.C. §103 rejection of applicants' claims. See United States v. Adams, 148 USPQ 429 (1966).

Discussion of the References:

20 **Strother, U.S. Patent No. 4,233,501 (Strother).** The Strother reference discloses a horizon sensor for use on spacecraft that selectively reduces the light flux density from the sun, which improves the ability to detect the horizon of the earth. The horizon sensor comprises a lens 12 and a plurality
25 of photochromic elements 14, 16, and 18 that are positioned between the lens 12 and a detector 22. The photochromic elements 14, 16, and 18 darken in response to light incident thereon. The lens 12 directs light from the sun through the photochromic elements 14, 16, and 18. The photochromic elements then darken
30 in selected regions 15, 17, and 19 to reduce the light flux density of the sunlight before it reaches the detector 22. Since most of the light from the earth 72 passes through the un-darkened portions of the photochromic elements, the horizon sensor minimizes the reduction in light flux density from the
35 earth.

Schwerdt, et al., U.S. Patent No. 3,214,596 (Schwerdt). This patent discloses a detector for detecting the presence of

a marker 12 positioned on an object. The detector comprises a light source 31 which directs light through a partially silvered mirror 43 and a lens 49 in order to illuminate the reflective marker 12. Light from the reflected marker 12 passes through the lens 49 and is reflected onto the detector 36 by the partially silvered mirror 43. An aperture 41 positioned between the partially silvered mirror 43 and the detector 36 blocks the passage of light from less-brightly illuminated areas 11. The detector serves to maximize the contrast between the marker 12 and the area 11, thereby improving the ability to detect the marker 12.

Argument:

Summary of Argument:

Neither the Strother reference nor the Schwerdt reference discloses an occluding element that blocks a predetermined amount of light from a brightly illuminated region but does not block light from a less brightly illuminated region. Consequently, neither reference can anticipate the currently pending claims under Section 102. With regard to the obviousness rejections, the Strother reference fails to provide the suggestion or incentive required to modify the Strother device in the manner urged by the examiner. Therefore, Strother cannot support the examiner's obviousness rejections under Section 103.

Re The Rejections of Claims 1 and 2:

The examiner rejected claims 1 and 2 under 35 U.S.C. §102(b) as being anticipated by Strother. These rejections are improper in that Strother does not meet the limitations specifically set forth in rejected claims 1 and 2. For example, both claims 1 and 2 require an aperture stop positioned so that it is substantially co-planar with the image side focal plane of the lens. Strother does not meet this limitation. That is, while Strother does disclose an exit diaphragm 11b that is positioned on the image side of the lens (i.e. between the lens 12 and the detector 22),

Strother's diaphragm 11b is not co-planar with the image side focal plane of the lens 12. Since this element is not met, Strother cannot anticipate either claim 1 or claim 2.

5 A second element that is not met by the Strother reference relates to the occluding element. Claims 1 and 2 require an occluding element positioned between the lens and the illuminated area so that the occluding element blocks a predetermined amount of light from a brightly illuminated region on the object but does not substantially block light from the less brightly illuminated region. Strother's diaphragm 11a does not meet this limitation. More specifically, while Strother's diaphragm 11a is positioned between his lens 12 and the illuminated area (e.g., the sun 70 and earth 72), the diaphragm 11a does not block a predetermined amount of light from the brightly illuminated area (i.e., the sun 70) while not blocking light from a less brightly illuminated area (e.g., the earth 72). Instead, Strother's diaphragm 11a blocks light from both sources. See for example, col. 3, lines 2-5 of the Strother reference:

20 "Diaphragm 11a . . . limit[s] the amount of light that is passed through lens 12."

While Strother does eventually selectively block light from the brightly illuminated region (e.g., the sun 70), Strother does so in an entirely different way than does the present invention. Strother utilizes three photochromic elements 14, 16, and 18 to block light from the sun 70. However, Strother's photochromic elements 14, 16, and 18 are not positioned between the lens and the object, as is required by the occluding element of claims 1 and 2. Therefore, Strother's photochromic elements cannot be regarded as the occluding element recited in the claims.

30 Since the device disclosed in the Strother reference does not meet all of the limitations specifically set forth in claims 1 and 2, Strother cannot anticipate claims 1 and 2 as a matter of law. Consequently, the examiner's rejections of claims 1 and

2 under Section 102 are improper and must be removed.

Re The Rejections of Claims 1, 2, 4, 5, 8-11, 12, 14, and 17:

The foregoing claims stand rejected under Section 102(b) as being anticipated by Schwerdt. These rejections are also improper in that the Schwerdt reference fails to disclose each and every limitation contained in the rejected claims.

Each of the rejected claims includes the limitation that the occluding element be positioned between the lens and the illuminated area on the object so that the occluding element blocks a predetermined amount of light from the brightly illuminated region but does not substantially block light from the less brightly illuminated region. This limitation is not met by the Schwerdt reference. While the examiner contends that items 48 and 51 of Schwerdt define the occluding element, this contention is incorrect. Item 48 is a counterbore (see, for example, col. 2, lines 38-43). A counterbore is not an occluding element. Item 51 is a retaining ring (see, for example, col. 2, line 43). A retaining ring is not an occluding element.

However, even if the retaining ring 51 were regarded as an occluding element (i.e., in that ring 51 may block a small amount of light incident on the extreme outer perimeter of the lens), ring 51 still does not meet the requirement that the occluding element block a predetermined amount of light from the brightly illuminated region but not block light from the less-brightly illuminated region. In fact, such a circumstance goes against the primary teachings of the Schwerdt invention. That is, Schwerdt specifically desires a detector system that increases the contrast between the brightly illuminated region and the less brightly illuminated region. See, for example, col. 1, lines 35-38 of the Schwerdt patent:

"It is, therefore, an outstanding object of the present invention to provide a photoelectric sensor in which the ratio between the indicating signal and non-indicating signal is very high."

However, if Schwerdt's ring 51 met the limitations of the currently pending claims, the exact opposite would occur. That is, blocking light from the brightly illuminated region while not blocking it from the less brightly illuminated region tends to decrease, not increase, the contrast between the two regions. Stated another way, the teachings of the Schwerdt invention are the exact opposite of the teachings of the present invention. In Schwerdt, the object is to increase the contrast (i.e., ratio) between the light and dark spots on the object. This allows for the more reliable detection of the marker 12. The present invention, on the other hand, seeks to minimize the contrast (i.e., ratio) between light and dark areas on the illuminated object. This provides for the more reliable operation of the navigation system.

In summation, since the device disclosed in the Schwerdt reference does not meet each and every limitation contained in rejected claims (i.e., claims 1, 2, 4, 5, 8-11, 13, 14, and 17), Schwerdt cannot anticipate those claims. Consequently, claims 1, 2, 4, 5, 8-11, 13, 14, and 17 are allowable.

Re The Rejections of Claims 3, 7, 10-12, and 16:

The examiner rejected claims 2, 7, 10-12, and 16 under 35 U.S.C. §103(a) as being obvious over Strother for the reasons set forth in the office action. These rejections are improper in that Strother fails to provide the suggestion or incentive that is required to support the examiner's obviousness rejections.

Each of the claims that stands rejected under Section 103 requires an occluding element positioned between the lens and the object so that the occluding element blocks a predetermined amount of light from the brightly illuminated region but does not substantially block light from the less brightly illuminated region. Strother's entrance diaphragm 11a does not meet this limitation. Instead, Strother's diaphragm 11a blocks light from both the brightly illuminated region (e.g., the sun 70) and the

less brightly illuminated region (e.g., the earth 72). See, for example, col. 3, lines 2-5:

"Diaphragm 11a . . . limit[s] the amount of light that is passed through lens 12."

5 Nowhere does Strother discuss, or even suggest, that the diaphragm 11a blocks only light from the brightly illuminated region (e.g., the sun 70) while not blocking light from the less brightly illuminated region (e.g., the earth 72). In fact, such a circumstance would be highly desirable in Strother, since the object of his invention is to reduce the amount of light from the sun that reaches the detector in order to allow the detector to more reliably detect the horizon of the earth. However, Strother solves this problem in an entirely different way. That is, Strother reduces the amount of light from the sun by passing the sun light through a plurality (e.g., 3) of photochromic elements 14, 16, and 18. The photochromic elements darken in the region receiving the sunlight, thereby blocking the transmission of the same. The un-darkened regions of the photochromic elements allow the light from the less brightly illuminated region (e.g., the earth 72) to be only minimally blocked.

20 Since Strother solves a problem that is similar to the problem solved by the present invention (i.e., selectively blocking light from a bright region while minimally blocking light from a less brightly illuminated region), but in an entirely different way, Strother presents no need, thus no suggestion or incentive, to modify his device to perform the same function but in a different way. Consequently, Strother cannot support the examiner's obviousness rejections under Section 103.


25 Applicant believes that all the claims now pending in this patent application, as described above, are now allowable and that all other problems raised by the examiner have been rectified. Therefore, applicant respectfully requests the examiner to reconsider his rejections and to grant an early

allowance. If any questions or issues remain to be resolved, the examiner is requested to contact the applicant's attorney at the telephone number listed below.

Respectfully submitted,

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